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ABSTRACT

The paper describes a microcomputer simulation program developed to train preservice special education teachers in the use of basic behavior modification skills. The program was written in SuperPILOT on an Apple IIe using a BCD interface card and a Panasonic NV 8200 video tape recorder. Production suggestions are offered. The incorporation of inter-active video microcomputer simulations into methods courses may provide a means for the student-teacher to develop classroom teaching skills before actually entering the classroom. Interactive video tape and/or video disc programs can be used to give the preservice and/or inservice teacher similar experiences to those encountered in the actual classroom. In this way, methods courses may become more capable of preparing students through experiential approaches rather than descriptive ones. (Author/CL)

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Preservice Special Education: Interactive Video Simulation

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Abstract

The demand for reforms in public school education are having a direct affect on teacher training institutions. Preservice teacher training programs need to better prepare the student-teacher for his/her first teaching assignment. Teaching and classroom management skills need to be more fully mastered before the student enters the actual practice-teaching situation. Practice-teaching assignments need to be geared more to the "fine-tuning" of teaching skills, than to the development of new skills.

The incorporation of inter-active video microcomputer simulations into methods courses may provide a means for the student-teacher to develop classroom teaching skills before actually entering the classroom. Interactive video tape and/or video disc programs can be used to give the preservice and/or inservice teacher similar experiences to those encountered in the actual classroom. In this way, methods may become courses more capable of preparing students through experiential approaches in place of more descriptive ones.

This paper describes a simulation program developed to train preservice special education teachers in the use of basic behavior modification skills. The program was written in SuperPILOT on an Apple IIe using a BCD interface card and a Panasonic NV 8200 video tape recorder.

Preservice Special Education Training: Interactive Video Simulation

Microcomputer technology has received unprecedented acceptance into elementary and secondary educational systems (Evans(a)). It also promises increased efficiency for teacher training institutions (Brady & Dodge, 1982). The applications of microcomputers in the areas of data base management, word processing, spread sheets, project scheduling-management, and test scoring at the post-secondary level may offer these institutions some relief from the recent wave of criticism directed towards the education of teachers in the United States.

In addition, the introduction of microcomputer controlled interactive video tape programs (MCIVTP) may provide teacher training institutions assistance with one of their major dilemmas; the conversion of knowledge into classroom practice (Semmel, Varnhagen, & McCann, 1981). This paper will present the rationale and possible applications of MCIVTP development in the training of teachers. It will include a description of a program written in SuperPILOT (Apple(a), 1982; Apple(b), 1982) for an Apple IIe computer, a BCD interface card, and a NV-8200 Panasonic video tape recorder.

Teacher Training

The media has expounded upon the apparently widespread dissatisfaction with education in the United States. This has been especially true in the area of teacher training (Clabaugh, Faden, & Vogel, 1984). Much of the criticism directed towards teacher training institutions has centered around methods courses. The courses supposedly designed to instruct preservice teachers "How to teach" (Gage, 1984; Warger & Aldinger, 1984).

Ironically, this seemingly unending list of demands for reforms in the training of teachers has been popularized concurrently with the development of the first scientific foundation for teacher education (Berlinger, 1984). Research has developed a data base (admittedly in the formative stages) in support of teacher training institutions' basic premise for existence; that teaching practices can be changed (Gage, 1984; Warger & Aldinger, 1984). Furthermore, that changing teaching practices can improve student achievement, attitude, and conduct has been shown. Initially, preservice teachers need to be trained to do what has been observed in the classrooms of effective teachers (Gage, 1984).

Teacher training institutions have received mandates to produce competent teachers (Warger & Aldinger, 1984). Research has repeatedly supported the expansion of practicum experiences as a means of improving teacher education (Barr, 1984; Berlinger, 1984; Lang, Quick, & Johnson, 1975; Rolider, Pierce, Van Houten, Molcho, & Ylevitch, 1985; Semmel, et.al., 1981). Practicum need to evolve from being basically evaluative, into being learning and developing experiences.

Unfortunately, field practicums are also "very expensive", "extremely time consuming", and "potentially damaging" to students in the practicum room due to "trainee errors." (Semmel, et.al., 1981, p.27). "Only in preservice education programs will novice teachers be able to practice these behaviors safely, in an environment in which they can not harm children while learning their pedagogical skills" (Berliner, 1984, p.95).

Microcomputer Simulation

Fortunately, microcomputer simulations offer many promising possibilities (Evans(b); Ober, Bentley, & Miller, 1971; Lloyd & Idol-Maestas, 1983; McCann & Kelemen, 1984; Semmel, et.al.,1981); such as: practicing new techniques, presenting a controlled environment, and/or practicing classroom management. Simulations make it possible to convert teacher training from a passive learning experience into an active one (Bork, 1984). However, the incorporation of computer simulations into teacher training has not been adequately researched (Lloyd & Idol-Maestas, 1983). Traditional simulations have been pencil and paper exercises. Computer simulations have not been widely used in teacher training. Preliminary evidence suggests positive results with computer simulations in teaching problem solving techniques, demonstrating cause-and-effect responses, and in replacing traditional preservice observations in classroom settings (Lloyd & Idol-Maestas, 1983; McCann & Kelemen, 1984). The proposed MCIVTP type programs could make classroom simulations economically available to all teacher training institutions.

The MCIVTP Program

The MCIVTP program consists of a "Lesson Hello" plus a lesson for each tutorial lesson and/or teaching situation depicted. The actual program is written in the SuperPILOT Authoring Language (Apple Computer(a), 1982; Apple Computer(b), 1982) making extensive use of two of the Authoring Language's system variables (%V and %W). It interacts with a video tape of teaching situations by inserting specific frame numbers from the video tape address code into the video commands (v:) of the SuperPILOT Authoring Language.

Video Tape

The first step is the production of a video tape illustrating the desired teacher-student interactions. This is probably the most time consuming component of the project. However, one could make use of commercially available linear instructional video tapes and/or films. With appropriate copyright releases, and some editing skills, one can combine segments from several sources to produce very desirable video tapes of teaching situations.

Address Code

The SuperPILOT Authoring Language disk does not contain enough memory space to hold the procedures required to place address code on the video tape. The Instructor Authoring Language (BCD, 1984) is used to place the address code onto the video track two. This code constitutes the means by which particular scenes on the

video tape can be located and viewed.

Scene Identification

Instructor Authoring Language (BCD, 1984) is also used to determine the beginning and ending locations of each selected scene to be viewed. The specific frame numbers are then printed to facilitate insertion into the SuperPILOT video commands.

Lesson Hello

The initial lesson is labeled "Hello" in order to make the lesson disk "self-booting". This lesson must contain the video tape initialization commands to allow the computer program to read the address code on the video tape.

```
v: prol 120
v: slot4
v: aud1
v: init
```

This lesson may also contain a pre-test and usually a menu which allows the user access to the lessons containing the simulations with which he/she wishes to interact.

Additional Lessons

These lessons contain the video commands which interface the program with the

video tape. They also contain the procedure which allows the program to determine the frame number at which the video sequence is interrupted by the press of the "ESC Key". This procedure makes it possible for the user to interact with the video sequence while the sequence is playing. The following portion of a lesson could be used to create a simulation of the use of positive reinforcement and ignoring procedures with an individual child's attending behaviors.

```
*apply
g:es
t: This section will give you the opportunity to apply the principles of
   behavior modification reviewed in the earlier lessons.
v: find 15049
t: press return to continue
as:
g:es
t: The next video sequence will demonstrate the use of ignoring combined
   with positive reinforcement.
t: watch it closely - soon you will be asked to indicate when the child
   should be reinforced.
t: press return when you are ready to continue
as:
g:es
t: please wait for the video tape
v: plyb 16650
g:es
```

```
v:find 15051
t: I hope you watched closely.  In the next video sequences you are to press
   the "ESC Key" when you think the child is attending and should be
   positively reinforced for eye contact.
*Q1
t: Remember!  Press the "ESC Key" when you think the child is attending!!
t: Press return when you are ready!
as:
g:es
t: Please wait for the video tape
t: Find and press "ESC" at the right time.
v: plyv 16169
g:es
v:fram
c:v=%v
c:w=%w
c:v*256*256+w
j(f<16019):early
j(f>16019&f<16169):good
j(f>16169):late
*late
g:es
t: $N$ , I believe you waited until the tape stopped by itself.
t: Press return and this section will start over again for you.
as:
```

j:apply

*early

g:es

t: N , I think you pressed the "ESC Key" too soon.

t: Press return and the video sequence at which you decided to reinforce will be played again. You should observe some undesirable behaviors.

as:

g:es

t: please wait for the video tape

v: find #f

v: plyb 16019

g:es

t: N , I hope you were able to see why the time you chose to reinforce was not acceptable.

t: Now press return to see the video segments illustrating desirable behaviors - When "ESC" should have been pressed.

as:

g:es

t: please wait for the video tape

v: find 16019

v: plyb 16350

g:es

t: press return to try question number one over again.

v: find 15051

as:

g:es

j:Q1

*good

g:es

t: Very good N , You selected an appropriate time to reinforce the child for attending behavior.

v: find 16727

t: Press return when you are ready for the next question.

as:

Summary

The incorporation of MCIVTP programs into teacher training curriculums may provide the necessary link between a student's knowledge of classroom principles and his/her ability to apply those principles in a classroom. MCIVTP programs could supply this link without risking any possible damage to children due to a trainee's insufficient skill development.

Initial development of MCIVTP programs is very "time consuming ", but once developed they could be used "repeatedly" (Lloyd & Idol-Maestas, 1983, p.183). The commercial development of video tape and/or video disk classroom simulations may also become reality in the near future (McCann & Kelemen, 1984). The additional video disk features of almost instantaneous random access and the ability to remain in a freeze-frame position indefinitely without causing physical equipment damage makes the future possibilities of replacing the MCIVTP programs with microcomputer

controlled interactive video disk programs very exciting (Hofmeister & Thorkildsen, 1981). Either or both systems may help supply necessary strengthening of teacher education programs.

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